

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): Method of positioning electrodes in an electrode array comprising at least five electrodes for central nervous system (CNS) monitoring from the forehead of a patient's head, the method comprising the steps of:

positioning a first electrode above the eyebrows ~~near~~ such that it can sense a signal from the frontalis and at least one of the corrugator, procerus, and orbicularis muscles of the patient and can be optimized to detect phasic and tonic activation of facial muscles expressing painful mimic responses;

positioning a second electrode above the first electrode on the fronto-lateral area of the frontal lobe of the patient and on the same hemisphere as the first electrode;

positioning a third electrode above the eyebrows ~~near~~ such that it can sense a signal from the frontalis and at least one of the corrugator, procerus and orbicularis muscles of the patient at the opposite hemisphere when compared to the first electrode and can be optimized to detect phasic and tonic activation of facial muscles expressing painful mimic responses;

positioning a fourth electrode above the third electrode on the fronto-lateral area of the frontal lobe of the patient and on the same hemisphere as the third electrode; and

positioning a fifth electrode on the patient's skin-;

wherein the at least five electrodes are arranged such that at least two of electroencephalography, frontal electromyography and eye movement signals can be distinguished from each other and a level of patient sedation can be assessed.

Claim 2 (original): The method of claim 1 wherein the second electrode is positioned as far as possible from the first electrode and the fourth electrode is positioned as far as possible from the third electrode.

Claim 3 (original): The method of claim 1 wherein the fifth electrode is positioned on the area of the patient's skin having bone immediately under the skin.

Claim 4 (previously presented): The method of claim 2 wherein the areas on which the second, the fourth and the fifth electrode are positioned are hairless areas.

Claim 5 (original): The method of claim 1, wherein the first, second, third and fourth electrodes are measuring electrodes and the fifth electrode is a ground electrode.

Claim 6 (currently amended): The method of claim 5, wherein ~~FEMG~~frontal electromyography is measured with bipolar connection between the first and the third electrode.

Claim 7 (currently amended): The method of claim 5, wherein ~~EEG~~electroencephalography is measured with bipolar connection between the second and the fourth electrode.

Claim 8 (currently amended): The method of claim 5, wherein ~~EEG~~electroencephalography from one hemisphere is measured between the first and the second electrode, and ~~EEG~~electroencephalography from the other hemisphere is measured between the third and the fourth electrode.

Claim 9 (original): The method of claim 1 wherein the fifth electrode is positioned on the head area of the patient.

Claim 10 (currently amended): The method of claim 9 wherein the fifth electrode is positioned at the ~~centre~~center of the area defined by the above mentioned four electrodes.

Claim 11 (currently amended): Method of positioning electrodes in an electrode array comprising at least five electrodes for central nervous system (CNS) monitoring from the forehead of a patient's head, the method comprising the steps of:

positioning a first electrode above the eyebrows ~~near~~ so that it can sense a signal from the frontalis and at least one of the corrugator, procerus and orbicularis muscles of the patient and can be optimized to detect phasic and tonic activation of facial muscles expressing painful mimic responses;

positioning a second electrode to the temple of the patient at the same side of the head as the first electrode;

positioning a third electrode above the eyebrows ~~near~~ such that it can sense a sign from the frontalis and at least one of the corrugator, procerus and orbicularis muscles of the patient at the opposite hemisphere when compared to the first electrode and can be optimized to detect phasic and tonic activation of facial muscles expressing painful mimic responses;

positioning a fourth electrode to the temple of the patient at the same side of the head as the third electrode; and

positioning a fifth electrode on the patient's skin;

wherein the at least five electrodes are arranged such that biopotential signals from both cortical hemispheres can be measured for functional comparison to detect non-symmetries between the hemispheres and eye movements can be detected.

Claim 12 (currently amended): The method of claim 11 wherein the temple is the area between ~~and~~ an eye and an ear.

Claim 13 (original): The method of claim 12 wherein the area is at eye level anterior of the ear.

Claim 14 (original): The method of claim 11 wherein the fifth electrode is positioned on the area of the patient's skin having bone immediately under the skin.

Claim 15 (original): The method of claim 14 wherein the fifth electrode is positioned on the head area of the patient.

Claim 16 (original): The method of claim 15 wherein the fifth electrode is positioned at the middle area between the first and the third electrode.

Claim 17 (currently amended): The method of claim 11 wherein ~~EEG~~
electroencephalography is measured from one hemisphere by using the first and the second electrode, and ~~EEG~~electroencephalography is measured from the other hemisphere by using the third and the fourth electrode.

Claim 18 (currently amended): Method of positioning electrodes in an electrode array comprising at least seven electrodes for central nervous system (CNS) monitoring from the forehead of a patient's head, the method comprising the steps of:

positioning a first electrode above the eyebrows ~~near~~ so that it can sense a signal from the frontalis and at least one of the corrugator, procerus and orbicularis muscles of the patient and can be optimized to detect phasic and tonic activation of facial muscles expressing painful mimic responses;

positioning a second electrode above the first electrode on the fronto-lateral area of the frontal lobe of the patient and on the same hemisphere as the first electrode;

positioning a third electrode above the eyebrows ~~near~~ so that it can sense a signal from the frontalis and at least one of the corrugator, procerus and orbicularis muscles of the patient at the opposite hemisphere when compared to the first electrode and can be optimized to detect phasic and tonic activation of facial muscles expressing painful mimic responses;

positioning a fourth electrode above the third electrode on the fronto-lateral area of the frontal lobe of the patient and on the same hemisphere as the third electrode;

positioning a fifth electrode on the patient's skin;

positioning a sixth electrode to the temple of the patient at the same side of the head as the first electrode₅; and

positioning a seventh electrode to the temple of the patient's head at the same side of the head as the third electrode₂

wherein the at least seven electrodes are arranged such that at least two of electroencephalography, frontal electromyography and eye movement signals can be distinguished from each other; biopotential signals from both cortical hemispheres can be measured for functional comparison to detect non-symmetries between the hemispheres; and eye movements can be detected.

Claim 19 (currently amended): The method of claim 18 wherein the temple is the area between ~~an~~an eye and an ear.

Claim 20 (original): The method of claim 19 wherein the area is at eye level anterior of the ear.

Claim 21 (original): The method of claim 18 wherein the fifth electrode is positioned on the area of the patient's skin having bone immediately under the skin.

Claim 22 (original): The method of claim 21 wherein the fifth electrode is positioned on the head area of the patient.

Claim 23 (original): The method of claim 22 wherein the fifth electrode is positioned at the centre area defined by the first, the second, the third and the fourth electrodes.

Claim 24 (previously presented): The method of claim 3 wherein the areas on which the second, the fourth and the fifth electrode are positioned are hairless areas.

Claim 25 (new) The method of claim 11, wherein vertical, horizontal and diagonal eye movements are distinguished from each other.

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Claim 26 (new) The method of claim 18, wherein vertical, horizontal and diagonal eye movements are distinguished from each other.